



# ESD at the 1-Meter Telescope

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- An initial ESD assessment was done at the 1-meter Telescope building on Tuesday, 11-03-2009.
  - This presentation contains a lot of the information and initial observations as that in Tom Diehl's presentation, docdb #3790-v3.
  - The movable platform is covered by a carpet that was initially antistatic and the carpet was bonded by straps to the platform metal.
  - It was observed that by taking a few steps across this carpet, an ESD charge of about 350 volts would be generated between persons and between personnel and the telescope structure.
  - A classic ESD event occurred when I climbed on the movable steps to look at the electrical installation and received a shock to the cheek, indicating a significant ESD charge build-up.



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- This ESD shock event illustrated the definite significant ESD hazards that exists and provides fairly conclusive evidence of the probable cause of past CCD failures.





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- Another observation: Walking on the concrete and then checking for ES fields did not reveal any build-up between the personnel and the dome or stairway metal.
- The grounding of the telescope (for ESD) appears sufficient.
  - The continuity between the telescope metal (white) and the UPS power safety ground (from the strip mounted on the telescope) measured at 0.5 ohms --indicating a hard, low-impedance connection.
  - The movable platform is bonded to the telescope's gantry (blue metal) by a wide grounding strap. Verified its continuity.
  - The telescope metal (white) and the gantry metal (blue) had a continuity of around 8 ohms. OK for ESD but not for reference grounding.



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- An improvised ESD safe work surface and grounding straps were installed (with Gale's help) on Wednesday and Thursday prior to the installation of the dewar and electronics crate.





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- A draft procedure for mitigation of the ESD hazards during installation of the dewar and crate was included with Tom Diehl's docdb #3790-v3 presentation at the integration meeting on Wednesday afternoon (11-4-2009).
- A trial run of this procedure was done during the dewar and crate installation on Thursday (the 5<sup>th</sup>) afternoon.
- A final draft of the procedures for ESD hazard mitigation is written and included with this docdb presentation.
  - There are four separate ESD procedures with specific steps to take during four types of tasks: 1) installation of the dewar and crate, 2) removal of the dewar and crate, 3) working on or around the dewar while it is installed, 4) recharging the dewar with N<sub>2</sub>.